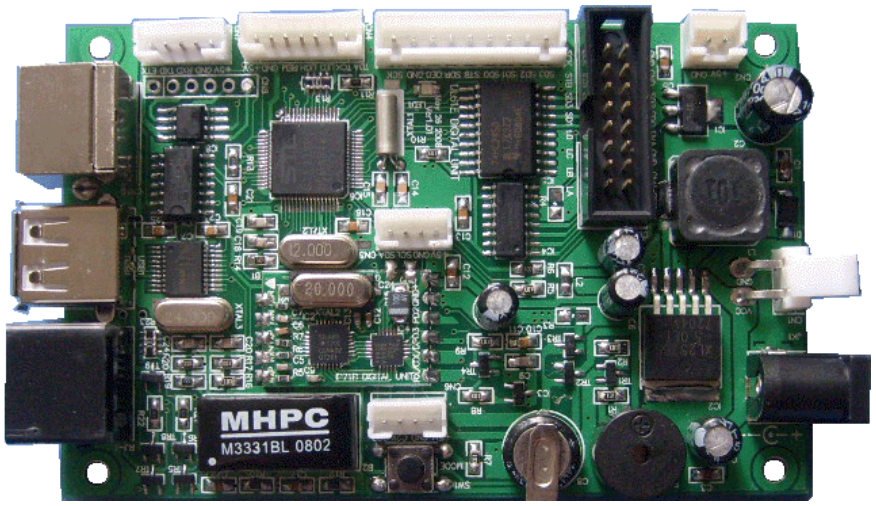
LED Display Drive Board DL61E User Manual

Model: DL61E

DL61E is a simplified version of DL61K. Breaking away computer completely can drive all one-color and two-color LED display screens in the market. Support computer upper monitor control, and through various communication equipments such as Ethernet network interface, RS232, and the standard keyboard of PS2 interface, user can edit and change display contents at will. Support wireless and remote control function, operation is simple and easy.

◆ Characteristics

- Use DISTOOLS computer terminal control tool, support GIF animated cartoon, BMP picture, TXT text, and CSV form files.
- The maximum supports 40960 dots one-color display screen (160 16 × 16 Chinese characters) or 20480 dots two-color display screen (80 16 × 16 Chinese characters).
- Support Ethernet network interface (RJ45), user can use existing network equipments to realize long distance communication control.
- Have PS2 keyboard interface on the board, user can directly use the standard computer keyboard as input tool, there is no need to use computer to change display contents.
- Support infrared remote control, users can easy input various symbols and realize various entering laws such as Pinyin, T9 strokes of a Chinese character, numbers, and English.
- Two power supply interfaces, drive board and display screen can supply power each other.
- Automatic luminosity control function can automatically adjust brightness display according to the brightness changes of surrounding environment.
- The technology that using single chip on the board directly decodes gif and the compression and decompression technology of picture make the speed of communication more high, and improve the reliability of communication.
- User can modify at will the quantity of display screen connected and arrangement mode.
- Take the lead in putting out the shortest display screen connection technology, even though many rows of display screens are connected together, still can make sure that only link between two adjacent screens, and don’t need to increase control card or apply the lines of different specifications.
- Single chip applies the mode that using serial interface sends internal code to carry out display, as control unit, which provides convenience for being added into the product of user.
- Have simplified Chinese character and traditional Chinese character two kinds of 16×16 dot matrix Chinese character library at the same time; support GB (GUO BIAO) and BIG5 internal code.
- Communication function is powerful, support various long distance interfaces such as Ethernet, RS232, and RS485.
- Opened serial interface communication protocol, user can carry out repeated development， and realize the individuation of product.
- Can display year, month, day, hour, minute, second, week, temperature, luminosity, humidity, and support 12-hour time system and 24-hour time system.
- Multi-level display brightness and speed adjustment.
- +10V to +48V width range power supply, can provide 2A/+5V stable voltage power for display screen.



◆ Application Fields

- Plaza, emporium, shopping center, etc.
- The sale exhibition counter, exposition, etc.
- Advertisement industry, mobile information, information announcing, etc.
- Government policy and decree announcing and all kinds of market quotations announcing.
- The common place needing information display such as airport, station, dock, gymnasium, bank.

◆ The Files Relating to DL61E

- 《DISTOOLS display screen control tool software user manual》----------cnstl801.pdf
- 《Ethernet control tool software》----------cnstl802.pdf
- 《Display screen keyboard and remote control operation user manual》----------cnstl264.pdf
- 《High brightness LED display screen user manual》----------cnstl261.pdf
- 《Cordwood LED module display screen user manual》----------cnstl263.pdf
- 《 The Ethernet and serial interface of display screen communication protocol V3.88 》 ----------cnstl101.pdf
- 《Display screen interfaces user manual》----------cnstl231.pdf
- 《ST-991AR5 upgrading device user manual》----------cnstl201.pdf

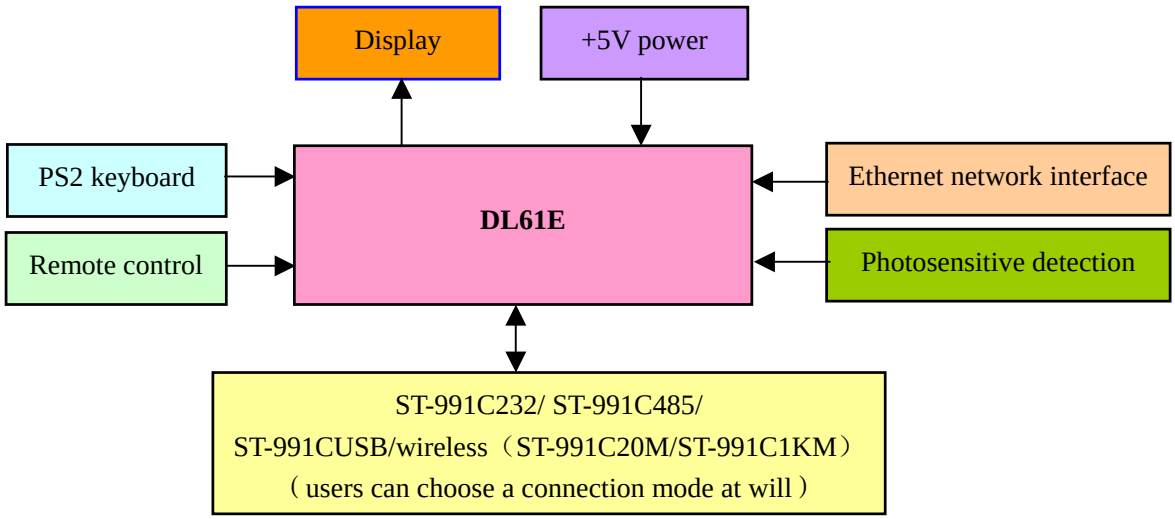
◆ Installation Characteristics

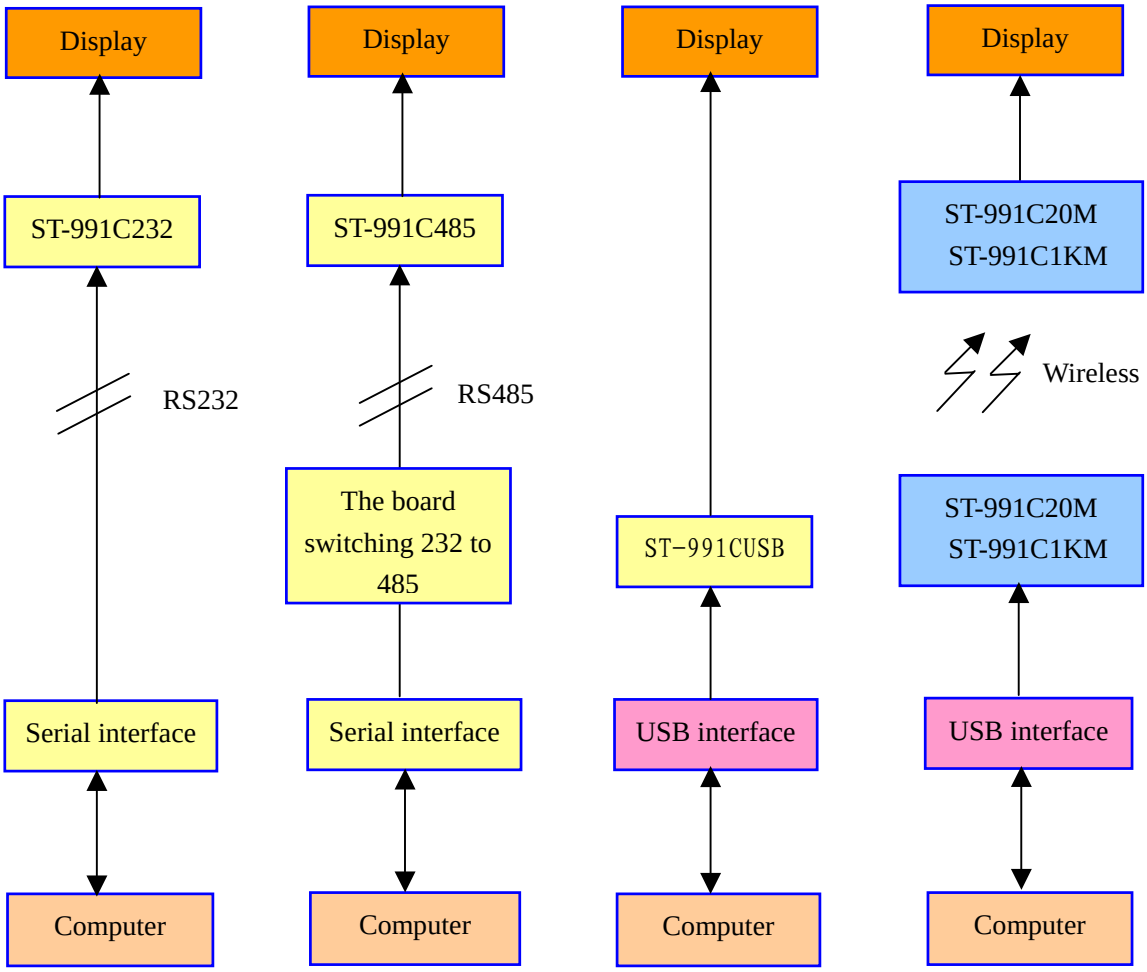
- Outline dimension is 100 × 63mm^2 and installation dimension is 91 × 55mm^2.
- An internal touch switch used to display luminosity percentage, humidity, temperature, and the IP address of display screen
- Internal buzzer, user can carry out any operation, have corresponding ringing indication.
- Have the built-in high efficiency DC voltage stabilizer, width voltage input range, from +8V to +40V.
- Adopt farad capacitance as the backup power, which can completely eradicate the abuse of electrolyte leakage aroused by battery supplying and lifetime is short, and can run a month under the situation of

not supplying electricity.

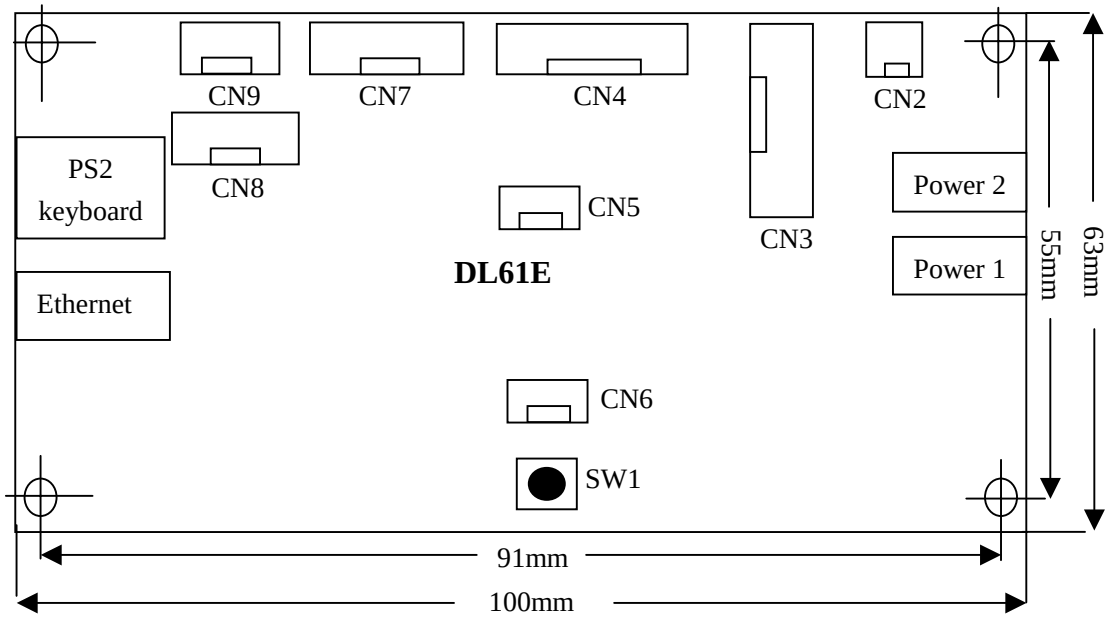
- Accurate clock rectification function can do +/-63 steps clock accuracy adjustment, and can correct timekeeping errors aroused by the temperature of installation place and other factors.
- Adopt FLASH memory, all operation and advertisements have power-fail memory, and erasing times exceed 100,000 times.
- Internal 433MHz, 868Mhz or 915MHz wireless receiving devices; can use wireless connection far from computer about 20 to 1000 meters.
- 9-level flow speed adjustment, this function supports every advertisement different flow speed, and makes display more nimble and changeful.
- Can choose various circulation modes such as order, repeat, and random.
- Power consumption is low, and can adopt thinner wire to make long distance current supply.
- The range of power supply voltage is +12V to +40v, and there is no need to connect any connection wire when users adopt wireless communication mode, which applies to the small-scale advertisement announcing.

◆ DL61E Application Block Diagram





◆ Outline Dimension (unit: mm)



◆ Socket Function Instructions

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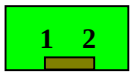
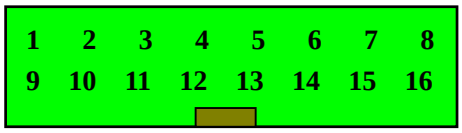


power supply input/output interface. Through this interface, drive board can directly supply power to display screen, also display screen can directly supply power to drive board.

1. **GND** Ground wire input/output.
2. **+5V** Power supply +5V input/output.

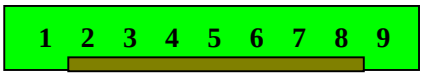
CN3



Other companies' LED display screen interface.

1. **GND** Ground wire input.
2. **GND** Ground wire input.
3. **SD2** Display screen serial data signal output 2.
4. **SD0** Display screen serial data signal output 0.
5. **ENA** Display screen brightness control signal.
6. **GND** Ground wire input.
7. **GND** Ground wire input.
8. **GND** Ground wire input.
9. **SCK** Display screen serial clock wire output.
10. **STB** Display screen locking signal output.
11. **SD3** Display screen serial data signal output 3.
12. **SD1** Display screen serial data signal output 1.
13. **LD** Display screen row selection signal output B3.
14. **LC** Display screen row selection signal output B2.
15. **LB** Display screen row selection signal output B1.
16. **LA** Display screen row selection signal output B0.

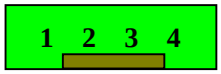
CN4



LED display screen control interface, this is the standard display screen control interface of HSAV.

1. **SCK** Display screen serial clock wire output. Used together by row and column.
2. **GND** Ground wire output.
3. **OEG** Display screen brightness control signal output.
4. **SDP** Display screen row data signal.
5. **STB** Display screen locking signal. Used together by row and column.
6. **SD0** Display screen data signal output 0.
7. **SD1** Display screen data signal output 1.
8. **SD2** Display screen data signal output 2.
9. **SD3** Display screen data signal output 3.

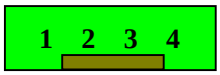
CN5



This interface is used to upgrade and test display screen in the inside of factory, and connecting ST-991AR5 can upgrade program.. In general, user may pay attention to it unnecessarily.

1. **SDA** The data wire input of I^2C of ST-991AR5.
2. **SCL** The clock wire input/output of I^2C of ST-991AR5.
3. **GND** Ground wire output.
4. **+5V** Power supply +5V output.

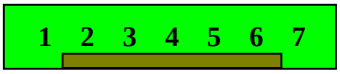
CN6



This interface is used to upgrade and test the internal IP71B module. In general, user may pay attention to it unnecessarily.

1. **C2D** Module firmware upgrading and simulation port
2. **C2K** Module reset input.
3. **GND** Ground wire input/output.
4. **+5V** Power supply +5V input/output.

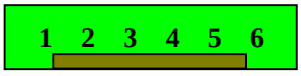
CN7



Expansion external remote control, temperature, humidity, and photosensitive detection function interface.

1. **+5V** Power supply +5V output.
2. **GND** Ground wire output.
3. **REM** Infrared remote control signal input.
4. **LGH** Photometer photometric detection signal input.
5. **LED** LED indicator light output.
6. **TCK** Temperature and humidity signal clock output.
7. **TDA** Temperature and humidity signal data input and output.

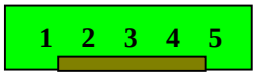
CN8



Large-capacity FLASH chip online upgrade and function expansion. In general, user may pay attention to it unnecessarily.

1. **VCC** Power supply output.
2. **GND** Ground wire output.
3. **SFCK** Serial clock input/output.
4. **SFMI** Serial data input.
5. **SFMO** Serial data output.
6. **SFCS** Control input/output.

CN9



Serial communication expansion interface.

If users choose to connect with ST-991C232(RS232 level switching board used by LED display screen), this interface can be used for RS232 expansion interface.

If users choose to connect with ST-991C485(RS485 level switching board used by LED display screen), this interface can be used for RS485 expansion interface.

Choosing ST-991CUSB can directly connect computer with display through USB interface.

After connecting with ST-991 receiving device, using ST-991C20M sending device to connect with the USB interface of computer can realize 20 meters long distance wireless communication, and using ST-991C1KM sending device to connect with the USB interface of computer can realize 1000 meters long distance wireless communication.

1. **ETX** Sending allowance output port. When it is sending, its level is high level and TTL level.
2. **TXD** The serial interface data output port of TTC level.
3. **RXD** The serial interface data input port of TTC level.
4. **GND** Ground wire input/output.
5. **VCC** Power supply input/output.

✧ Touch switch instructions

a) Pressing this switch continuously can in turn display the current luminosity percentage, temperature, humidity, and exit.

b) Pressing this switch long time can display the IP address of display screen, pressing it again can exit, or after several seconds, display screen can automatically exit.

Note:

a) power 1 interface: directly connect with power supply.

b) Power 2 interface: 3.80mm space between input/output interface. Through this interface, drive board can directly supply power to display screen, also display screen can directly supply power to drive board. In practical use, power 1 interface and power 1 interface can be used interchangeably.

◆ Using Remote Control Controls Display Screen

More information, please refer to display screen keyboard and remote control operation user manual (cnstl264.pdf).

◆ Using DISTOOLS Display Screen Control Tool Controls Display Screen

More information, pleas refer to DISTOOLS display screen control tool user manual (cnstl801.pdf).

◆ Using Ethernet Display Screen Control Tool Controls Display Screen

More information, pleas refer to Ethernet display screen control tool user manual (cnstl802.pdf).

◆ The Methods of Upgrading DL61E

The first method:

ST-991AR5 upgrading device connects with computer through serial port, at the same time connects with DL61E, and then supplying power can directly upgrade DL61E.

The second method:

First, ST-991AR5 upgrading device connects with computer, and downloads files used to upgrade DL61E to the upgrading device; second, after breaking away computer, upgrading device directly connects with DL61E; finally, supplying power can directly upgrade DL61E.

The third method:

Computer mainframe directly sends upgrading file to DL61E through the Ethernet network interface.

Note: more information about the first method and the second method, please refer to ST-991AR5 upgrading device user manual (cnstl201.pdf), and for further information about the third method, see Ethernet display screen control tool user manual (cnstl802.pdf).

◆ Electrical Specification and Temperature Specification

- Working power supply: +12V to +40V.
- Working current: 50mA @ +12V (do not include LED display).
- Working life: exceed five years
- Working temperature: 0℃ to +85℃。If users need the product of industry level, can directly ask for our company when order goods.

◆ Troubleshooting

1) Display screen cannot be lighted up: check the power supply to make sure that display screen has connected with power supply successfully, and control line is correct.
2) PC terminal tool communication is not normal.
   a) Check display screen power supply to make sure that power supply has been connected correctly.
   b) Check RS232 or RS485 interface to make sure that connection is right.
   c) Check the COM port to make sure that the COM port that has been chosen is correct. More information, please refer to “COM Port Selection and Ascertaining IP” of DISTOOLS display screen control tool software user manual. In addition, have to first install CP210X driver when users adopt wireless communication mode, and then search corresponding serial port, more information, please refer to the serial interface of display screen user manual (cnstl231.pdf).
   d) Check the “end address selection” and “start address selection” of “COM Port” setting to make sure that their IP are identical with the IP of display screen.
3) If users accidentally press the touch switch can exit according to the operation method of touch switch instructions mentioned above.

The specifications of this product will be updated and perfected unceasingly, and specifications subject to change without notice.